

SECTION 1B

ARRANGEMENT

<u>ITEM</u>	<u>PAGE</u>
1B.1 REFERENCES	2
1B.2 INTRODUCTION	2
1B.3 AMERICANS WITH DISABILITIES ACT (ADA).....	3
1B.3.1 PARKING SPACES.....	3
1B.3.2 PUBLIC SANITARY FACILITIES	3
1B.3.3 PUBLIC DRINKING FOUNTAINS	4
1B.3.4 PASSENGER STAIRWAYS	4
1B.4 GENERAL	4
1B.5 PRINCIPAL DIMENSIONS.....	4
1B.6 CAMBER & SHEER	5
1B.7 OTHER KEY DIMENSIONS	6
1B.8 INTERFACE WITH DOCKS.....	8
1B.8.1 VEHICLE DECKS LAYOUT	11
1B.8.1.1 Vehicle Deck Mock-up Demonstration.....	12
1B.8.2 BOARDING AND DISEMBARKING PASSENGERS	13
1B.9 PASSENGER VIEWING	14
1B.10 PASSENGER SEATING.....	15
1B.11 PUBLIC SANITARY FACILITIES	15
1B.12 OFFICER AND CREW SPACES.....	16
1B.12.1 BERTHING.....	16
1B.12.1.1 Licensed Officers	16
1B.12.1.2 Non-licensed Crew.....	17
1B.12.2 SANITARY FACILITIES	17
1B.12.3 DAYROOMS / SHELTERS	18
1B.12.4 UNASSIGNED ROOM	18
1B.12.5 OFFICES	18
1B.12.6 CREW STAIRTOWER.....	19
1B.13 PUBLIC SPACES, EMBARKATION DECK AND MUSTER STATIONS.....	19
1B.14 CORRIDORS	19

1	1B.15	DOORS.....	19
2	1B.16	PERSONNEL PROTECTION	20
3	1B.17	VISIBILITY FROM PILOTHOUSES	20
4	1B.18	TANKS AND VOIDS.....	21
5	1B.18.1	DIESEL FUEL TANKS.....	21
6	1B.18.2	POTABLE WATER TANKS	21
7	1B.18.3	SEWAGE HOLDING TANKS	21
8	1B.19	FOOD SERVICE AREAS.....	21
9	1B.20	EXTERIOR APPEARANCE.....	22
10	1B.21	STACK GAS FLOW	22
11	11B.21.1	STACK GAS FLOW WIND TUNNEL TESTING	22
12	1B.22	MATRIX OF SPACES	22
13	1B.23	PHASE II TECHNICAL PROPOSAL REQUIREMENTS.....	30
14	1B.24	PHASE III DETAIL DESIGN AND CONSTRUCTION REQUIREMENTS	31

15 **1B.1 REFERENCES**

16 (1BA) AMERICANS WITH DISABILITIES ACT (ADA), *ADA Accessibility Guidelines*
 17 *for Buildings and Facilities (ADAAG)*, dated July 23, 2004

18 (1BB) PASSENGER VESSEL ACCESS GUIDELINES (PVAG) - *Draft Passenger Vessel*
 19 *Accessibility Guidelines and Supplementary Information*, dated November 26, 2004

20 (1BC) NAVIGATION AND VESSEL INSPECTION CIRCULAR NVIC 8-93, *Equivalent*
 21 *Alternatives to 46 CFR Sub-chapter H Requirements Related to Means of Escape,*
 22 *Safe Refuge Areas, and Main Vertical Zone Length*

23 **1B.2 INTRODUCTION**

24 This Section contains the Contractor Design and Provide requirements for the Vessel
 25 arrangement. The arrangement of the Vessel entails many features that are unique to the
 26 service. The Vessel is intended to serve a varied clientele including tourists and regular
 27 commuters. The Vessel's primary function will be public transportation of Passengers and
 28 vehicles. Overall emphasis shall be on functional utility, ease of maintenance, compatibility

with WSF Fleet-wide Standardization, replacement of damaged and worn items, and longevity – all in a pleasing and comfortable environment.

For WSF Fleet-wide Standardization purposes, End No. 1 of the Vessel shall always be considered the bow, and this designation shall delineate port and starboard, fore and aft wherever they are addressed in the Technical Specification.

1B.3 AMERICANS WITH DISABILITIES ACT (ADA)

WSF is committed to meeting both the requirements and the spirit of the Americans with Disabilities Act (ADA). The Contractor shall make every effort to design and provide access by physically challenged persons to all public areas and accommodations on board the Vessel, and to all public services offered on board the Vessel.

Existing published accessibility guidelines for buildings and facilities are contained in Reference (1BA).

Reference (1BB) contains the Draft Passenger Vessel Accessibility Guidelines and Supplementary Information, completed in 2004 (<http://www.access-board.gov/pvaac/guidelines.htm#GENERAL>). These are intended to be incorporated into the ADA Accessibility Guidelines for Transportation Vehicles, although no date for incorporation has been specified.

1B.3.1 Parking Spaces

A total of six (6) ADA parking spaces shall be identified on the Vehicle Decks. A minimum of two (2) ADA parking spaces shall be identified on the Lower Vehicle Deck directly adjacent to each Passenger Elevator. Each parking space shall have side clearance in accordance with Reference (1BA).

1B.3.2 Public Sanitary Facilities

In general every public sanitary facility shall be designed and provided with at least one (1) fixture of each type provided (e.g., water closet, lavatory, mirror, etc.), and all appurtenances thereto, which satisfy the ADA accessibility standards. Notwithstanding the foregoing, on every public accessible deck on which public sanitary facilities are provided, there shall be at least one (1) set of facilities meeting ADA accessibility standards.

1B.3.3 Public Drinking Fountains

Public potable water drinking fountains shall be provided as bi-level units, with the lower level satisfying the accessibility standards of ADA and the upper level set at the standard height. One (1) bi-level public fountain shall be provided on the Passenger Deck at each end of the Vessel.

1B.3.4 Passenger Stairways

All public stairways aboard the Vessel shall satisfy the ADA accessibility standards. These standards require a minimum tread width between handrails of forty-eight (48) inches for all accessible means of egress. Minimum tread depth shall be eleven (11) inches, with a maximum allowable nosing overhang of 1½ inches. Riser height shall be no less than four (4) inches and no greater than seven (7) inches. These rise and run requirements constrain the maximum stairway slope to approximately 36 degrees. Handrail extensions and return dimensions as well as landings between flights shall also comply with ADA standards.

1B.4 GENERAL

The Contractor shall develop and design a Vessel certified for 144 standard sized Passenger Vehicles and for 1,520 Passengers and Crew between certain properly equipped ports located on the United States waters of Inland Washington. A limited number of cargo trucks and large recreational vehicles that do not exceed the fixed overhead clearance in the center section of the Lower Vehicle Deck shall be accommodated with a consequential loss of Passenger Vehicle capacity. The Vessel shall be equipped to provide limited food and beverage service on its normal routes. No overnight Passenger accommodations will be provided. This Section describes some of the requirements that must be considered in developing the general arrangement. Many other requirements, not mentioned in this section, are contained in other sections.

1B.5 PRINCIPAL DIMENSIONS

(Subject to developments in the Contractor's Design)

Note: All dimensions are molded

Length Overall362'-3"

Length between Perpendiculars (CL of Rudder Stocks)335'-0"

1	Beam at the Lower Vehicle Deck (Extreme).....	83'-2"
2	Draft, Scantling, and Subdivision	18'-0"
3	Depth to Main Deck at Centerline	24'-6"
4	Frame spacing:	27"
5	Draft at Design Load Waterline	16'-5 ⁷ / ₁₆ "
6	Displacement at Design Load Waterline	4,320 (LTSW)

7 **1B.6 CAMBER & SHEER**

8 The Vessel shall be designed with six (6) inches of straight line camber in the extreme Beam
 9 at the Lower Vehicle Deck. This camber shall extend from the outboard casing bulkheads to
 10 the deck edge only, port and starboard; (i.e., there shall be no camber in the center Tunnel
 11 area between the casings, which is normally considered a Weather Deck area). (See
 12 **FIGURE 1B-1**). There will be no deck camber in interior spaces. Camber is to be adequate
 13 such that no standing water or ponding (pooling) occurs even in the presence of local
 14 structural unfairness in the amounts permitted under ASTM F1053. All Weather Decks
 15 shall be designed and provided with camber.

16 For Camber purposes, Weather Decks include the following areas:

- 17 A. Lower Vehicle Decks (outboard only)
- 18 B. Upper Vehicle Decks
- 19 C. Passenger Deck Exterior (Picklefork areas and walkways)
- 20 D. Sun Deck (except inside "Crew Accommodation Block" areas, as defined as "Crew
 21 Quarters" and "Officer Quarters" in the *GENERAL* Subsection in Section 12 of the
 22 Technical Specification)
- 23 E. Navigation Bridge Deck and Navigation Bridge Deck Housetops (except inside
 24 "Pilothouse areas", as defined in the *GENERAL* Subsection in Section 12 of the
 25 Technical Specification)

26 There is no sheer at the centerline of the decks and all decks are parallel to the baseline at the
 27 centerline, and to one another except that the Lower Vehicle Deck shall have eight (8) inches
 28 of reverse, straight-line sheer over the last 10'-0" of each deck End.

1B.7 OTHER KEY DIMENSIONS

The minimum clearance dimensions at amidships for the Upper and Lower Vehicle Decks, Passenger Deck and Sun deck are shown in **FIGURE 1B-1**. The inset of the Curtain Plate side and the Passenger Deck side shall be as shown in **FIGURE 1B-1**. Specifically, the Curtain Plate must be inset a minimum of nine (9) inches from the Rub Rail at the Main Deck (Lower Vehicle Deck) and the Passenger Deck inset a minimum of an additional six (6) inches for a total inset of fifteen (15) inches at the Sun Deck. The depth of the Rub Rail shall be at least thirty (30) inches. No object may protrude beyond the fifteen (15) inch inset unless the following criteria have been satisfied: at all docks, and for all tidal ranges the object in question does not contact or come within two (2) feet of any existing dock structure. When evaluating any object, the wind, waves, current and Vessel loading (trim and list) must be considered. There shall be no tumblehome in the Curtain Plate.

Clear headroom in normally occupied spaces shall be nominally 7'-0" from the top of deck covering. Should it become necessary in detail plan development to impair this headroom in local areas, the Contractor shall obtain written approval from the WSF Representative.

To meet the requirements of the OFE equipment provided by the PSI Contactor under separate Contract, the "*EOS/Workshop area*" level, as defined in the *GENERAL* Subsection in Section 12 of the Technical Specification, shall be established at the 14'-0" level ABL, Port and Starboard. See the *GENERAL* Subsection in Section 50 of the Technical Specification.

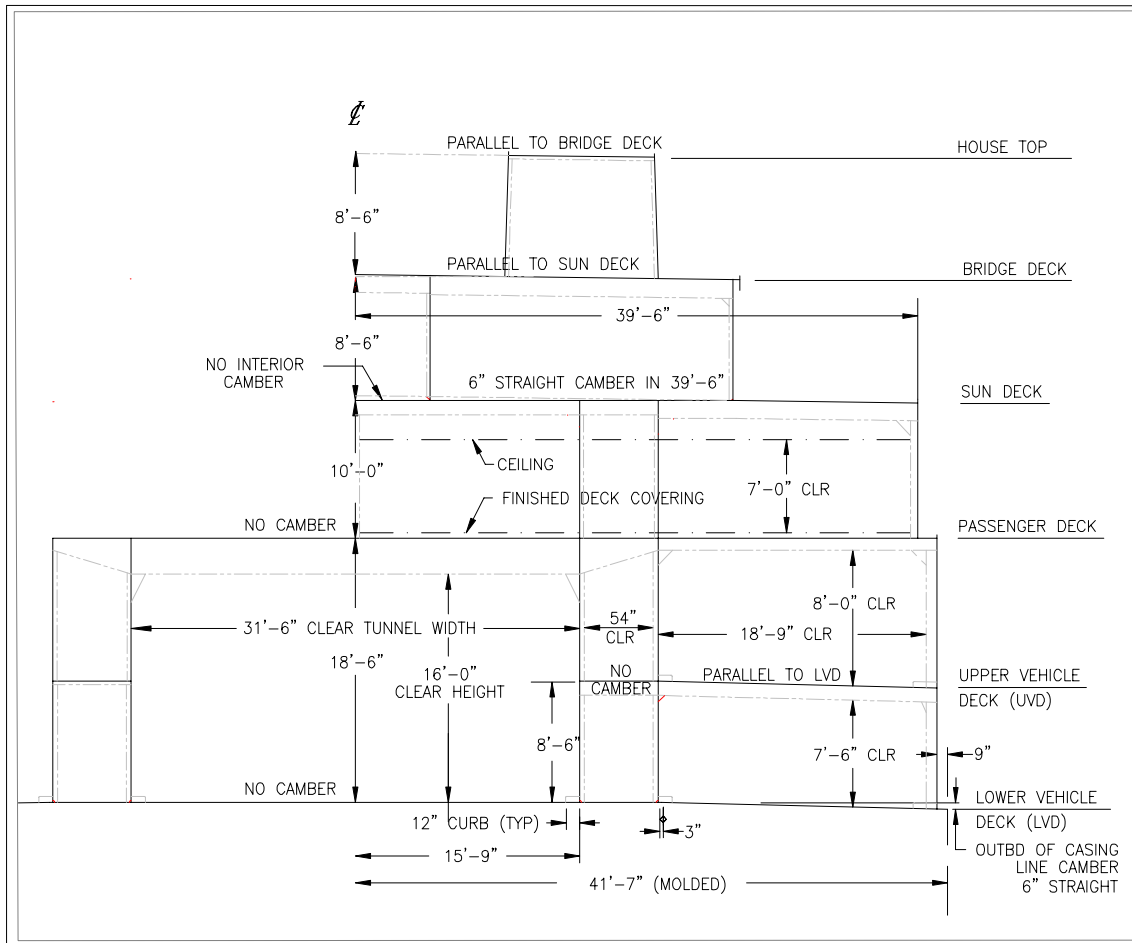


FIGURE 1B-1
Clearance Dimensions

1B.8 INTERFACE WITH DOCKS

The Contractor shall develop a design that allows a proper interface with all of the existing WSF dock facilities, at all stages of loading, and with consideration being given to wind, visibility, waves, and current. Additionally, the Vessel shall have the ability to load and unload under all normal conditions of Vessel draft and through *all tide ranges* at the following specific facilities:

- Seattle
- Bainbridge
- Bremerton
- Southworth
- Vashon
- Fauntleroy
- Mukilteo
- Clinton
- All San Juan Island route facilities

The Contractor shall develop a design that makes a proper interface with all of these existing facilities without requiring any modification to the existing dock facilities or modification to the new Vessels once they enter service.

Features which the Contractor shall consider in developing the design include, but are not limited to:

- 1) The shape of the Vessel Ends. The shape in plan of the Vehicle Deck at the extreme Ends of the Vessel shall conform to dimensions in **FIGURE 1B-2**;
- 2) The location and arrangement of mooring fittings and towing arrangement;

- 1 3) The location and arrangement of Passenger embarkation shall conform to
2 dimensions and arrangement shown in **FIGURE 1B-3**;
- 3 4) The location and arrangement of fueling station;
- 4 5) The location and arrangement of the potable/fresh water filling stations;
- 5 6) The location and arrangement of the sewage off load stations;
- 6 7) The location and arrangement of the shore power connections;
- 7 8) The location and arrangement of the Main Deck guard (Rub rail); and all other
8 features necessary to the proper interface of the new Vessels with the docks
9 mentioned above;
- 10 9) Vehicle Deck capacity and arrangement.

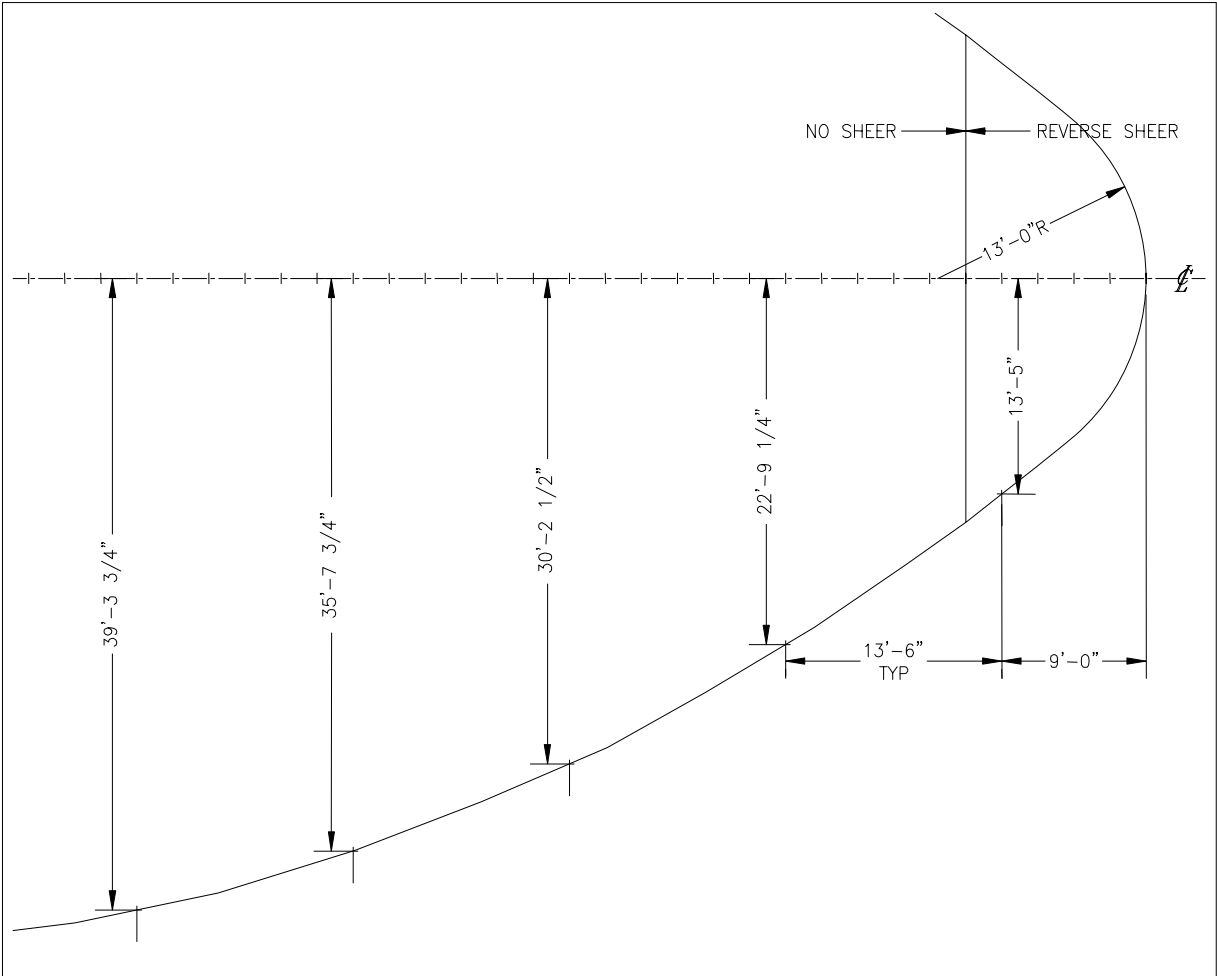


FIGURE 1B-2

Plan of Vehicle Deck Ends
(Molded Dimensions)

<u>Distance off C/L</u>	<u>Distance from the End</u>
13'-5"	9'-0"
22'-9 1/4"	22'-6"
30'-2 1/2"	36'-0"
35'-7 3/4"	49'-6"
39'-3 3/4"	63'-0"

1B.8.1 Vehicle Decks Layout

Assuming a port and starboard casing arrangement, the Lower Vehicle Deck shall be arranged to have three (3) lanes in the center between the inboard casing bulkheads, and two (2) lanes port and starboard outboard of the casing bulkheads for a total of seven (7) vehicle lanes. Additionally, two (2) Upper Vehicle Deck lanes shall be arranged outboard port and starboard for a total of four (4) vehicle lanes. The minimum clear width between curbs on the center lanes of the Lower Vehicle Deck shall be twenty-nine feet - six inches (29'-6") to accommodate three (3) lanes of truck traffic. The curbs shall be twelve (12) inches wide port and starboard. The outboard lanes shall have a minimum clear width of sixteen feet - nine inches (16'-9") between curbs. The curbs shall be twelve (12) inches wide inboard of the deepest structural member. The Upper Vehicle Deck clearances shall be the same as the Lower Vehicle Deck clearances at the outboard lanes. Other casing arrangements (e.g., single casing, off-centerline, or outboard casings) will be subject to special consideration by WSF but should not afford less vehicle capacity (including trucks), or less convenient loading, or less space between loaded vehicles, or less exterior Passenger viewing, than the twin casing arrangement.

The Contractor shall develop layouts for the various loading configurations establishing, as a minimum, the vehicle carrying capacities as outlined below using the design vehicles designated.

When developing vehicle layouts the Contractor shall assume the following:

- A. Longitudinal clear distance (aisle) between all vehicles shall not be less than six (6) inches (i.e., bumper to bumper).
- B. Standard Passenger vehicle size shall be 18 feet long \times 6½ feet wide.
- C. Transverse clearances for Passenger vehicles shall not be less than twenty-four (24) inches.
- D. Standard truck width shall be ten (10) feet between mirrors.
- E. Vehicle lanes shall be orientated in the longitudinal direction.
- F. Maximum vehicle ramp angle shall be twelve (12) degrees from horizontal.
- G. A dedicated thirty-six (36) inch wide access path shall be provided from each End of the Lower Vehicle Deck to the nearest Elevator and adjacent stairway. No vehicles may be stowed in these pathways.

All vehicles shall be parked such that the length of the vehicle is parallel to the centerline except at the ends where the longitudinal centerline of the vehicle can follow the center of the respective vehicle lane.

It must be possible for Passengers to open their vehicle doors and enter or exit their vehicles (on either side of their vehicle) when loaded in these various conditions.

1B.8.1.1 Vehicle Deck Mock-up Demonstration

No later than 45 days prior to the end of the Phase III Detail Design portion of this Contract, a full sized, one-half ($\frac{1}{2}$) Vessel (Port or Stbd, End No. 1 to End No. 2) representation of the Lower Vehicle Deck shall be laid out (full scale) and mocked up on a suitable flat surface as approved by the WSF Representative. This Contractor provided mock-up shall establish that the passage and onboard parking of vehicles as outlined above can be accomplished through the use of full sized test vehicles performing normal loading, parking, and off-loading maneuvers as set forth by the WSF Deck Crew personnel. All obstructions and interferences shall be accounted for, including but not limited to:

- A. Casing(s)
- B. Stanchions
- C. Trunks, ladders and access
- D. Curbs
- E. Outboard LVD to tunnel area arches
- F. Structure
- G. Piping and ventilation that may affect vehicle operations.

The Contractor shall provide all test vehicles required. The WSF Representative will provide qualified WSF deck hands to direct traffic during, and critic "real world" loading/off-loading operations during this demonstration.

The Contractor's mock-up shall be designed so it can be readily "adjusted" during the test should a component not satisfactorily pass traffic in an acceptable manner. The Contractor shall correct all those conditions which do not meet the requirements of this Contract prior to the start of construction, and re-demonstrate the mock-up for satisfactory vehicle flow.

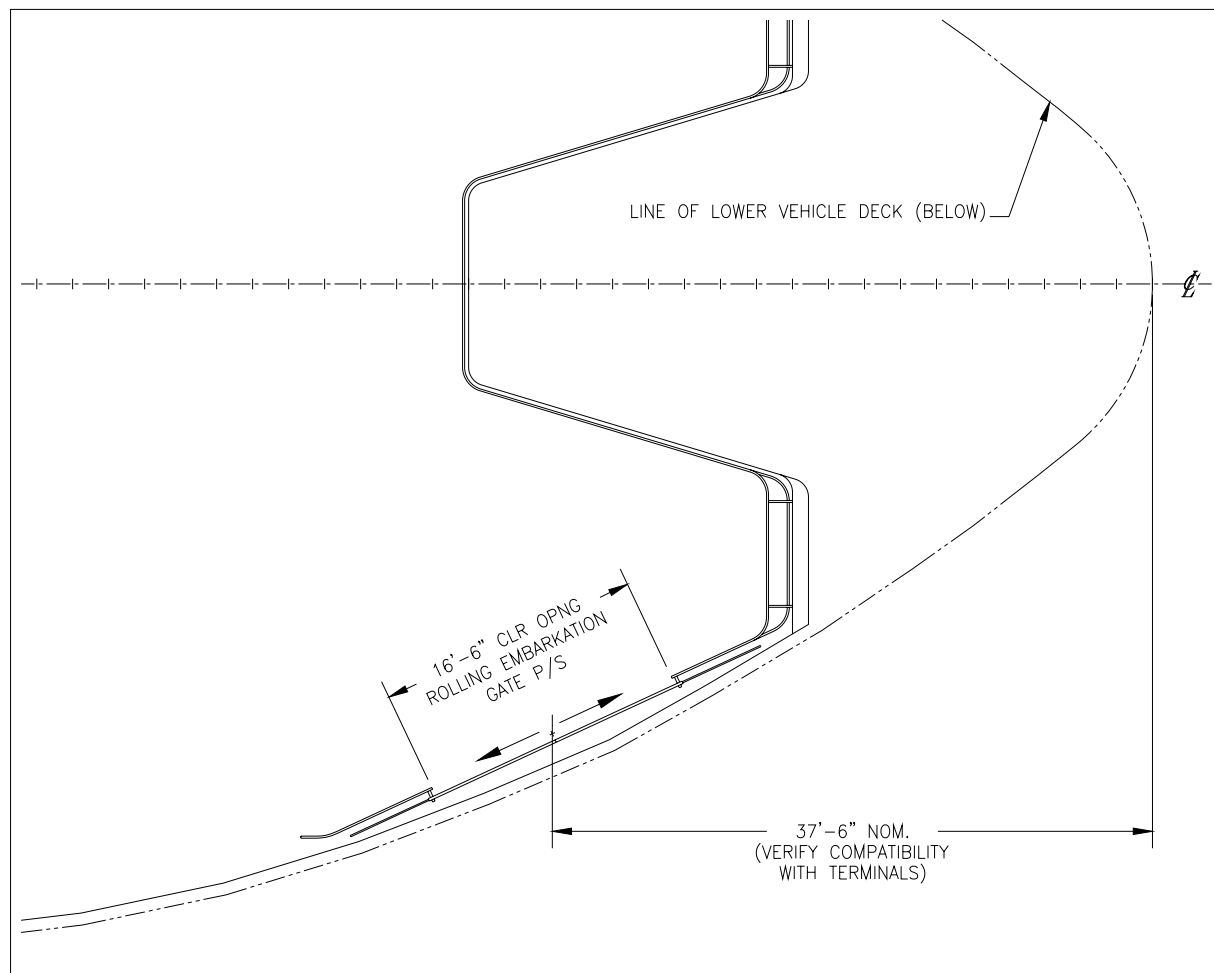
1B.8.2 Boarding and Disembarking Passengers

The Vessel arrangement must be developed to accommodate Passengers boarding and disembarking as follows:

- A. Over the shore-based Passenger Ramp landing on the outboard side of each Picklefork on the Passenger Deck. Provide minimum seventy-two (72) inch path.
- B. Over the shore-based vehicle loading ramp at each End of the Lower Vehicle Deck.

Passenger boarding paths should lead as directly as possible to the Passenger Deck and Cabin. Where the Passenger boarding path does not open directly onto the Passenger Deck, the paths between the embarkation point and the Passenger Deck should be as simple and direct as possible, so that boarding Passengers do not get lost or confused. Suitable signage (matching the existing WSF mainline fleet as to color, layout) shall be provided to direct Passengers to the Passenger Cabin. See Section and 24 of the Technical Specification for additional signage requirements.

Stairways shall be provided at each end of the Lower Vehicle Deck machinery casings leading directly to the Passenger Deck. Access to these stairways shall be provided at the Upper Vehicle Deck as well. A minimum of two (2) widely separated stairways shall be provided at each End of the Vessel. Elevators shall be provided between the Lower Vehicle Deck and all other Passenger accessible decks. A minimum of two (2) elevators shall be provided, one near each End of the Vessel, located close to the stairways leading to the Passenger Deck. See the *AMERICANS WITH DISABILITIES ACT* Subsection for additional requirements.

**FIGURE 1B-3**

Plan of Passenger Deck Ends (Picklefork) - (18' - 6" above LVD)

1B.9 PASSENGER VIEWING

Passenger spaces shall be designed and provided to emphasize and afford an excellent view of the land and seascapes. Passenger spaces are to emphasize and afford an excellent view of the landscape. Utility and crew functions should be, to the extent possible, relegated to interior core spaces leaving the Passengers with access to view windows. Passenger viewing opportunities should be maximized on all decks normally occupied by Passengers. The Sun Deck level shall provide open air lounges. Provision shall be made at this level for an open

air lounge at each end of the deck. Each open air lounge is open to the weather on the end facing midship, protected from the weather on the overhead, front and along the sides; and fitted with windows on the front and sides.

The extent and size of the windows (viewing surface) shall be generally as required in Section 5 of the Technical Specification. Viewing windows on the Passenger Decks shall generally have the following minimum clear dimensions:

Height above deck to bottom of glass: 2 foot - 9 inches

Height above deck to top of glass: 6 foot - 9 inches

Minimum width of glass, side curtain: 5 foot - 9 inches

Minimum width of glass, ends: 5 foot - 0 inches

The ends and sides of the Passenger Cabin shall have unobstructed views (except for structural supports, mullions, casings and interior spaces) forward, aft, port and starboard.

1B.10 PASSENGER SEATING

As a minimum, the arrangement of the Vessel shall be designed and provided to handle the number of seats designated in Section 19 of the Technical Specification. In addition, Passenger Lounge seating on the Passenger Deck shall be arranged to provide at least a 72-inch wide walkway on both the Port and Starboard side of the lounges, leading from End No. 1 of the Vessel through End No. 2. An exception to this width will be made for the Fire Screen Door located at the midship MVZ.

1B.11 PUBLIC SANITARY FACILITIES

Sanitary fixtures shall be designed and provided and distributed throughout the Vessel. Section 20 of the Technical Specification describes the minimum number of fixtures that shall be provided at each general location.

ADA requirements are identified in the *AMERICANS WITH DISABILITIES ACT* Subsection of this Technical Specification.

1B.12 OFFICER AND CREW SPACES

1B.12.1 Berthing

Except as noted, Officer and Crew berthing shall be provided on the Sun Deck in a centrally located "Crew Accommodations Block". WSF's policy is to berth the Crew by rank at different Ends of the Vessel. The non-licensed Crew shall be berthed in the No. 2 End of the Crew Accommodation Block, and Licensed Engineers and Mates shall be berthed in Staterooms in the No. 1 End of the block. The Master shall be accommodated in a Stateroom immediately aft of Pilothouse No. 1.

All Crew and Officer berths shall be oriented fore and aft without exception.

As a minimum, accommodations are to be provided for a complement of eleven (11) Officers and Crew. All Staterooms shall be outfitted with the equipment, fittings, and furnishings as outlined in other Sections of the Technical Specification.

1B.12.1.1 Licensed Officers

Licensed Officers shall be provided with single Staterooms with limited sanitary facilities (lavatory). As a minimum, Officer Staterooms shall be provided for the following:

- A. Master (aft of Pilothouse No. 1), with access to this Stateroom from both Pilothouse No. 1 and a separate exterior door to the Bridge Deck, w/toilet and shower
- B. Staff Chief Engineer, w/toilet and shower
- C. Chief Mate
- D. Chief Engineer
- E. Assistant Engineer

All Staterooms shall be outboard rooms with windows. Layout shall be with a single bunk located along the outboard bulkhead. The desk, chair, lockers and lavatory shall be arranged so as to allow the most efficient use of the space, with final arrangement to be approved by the WSF Representative.

Staterooms for the Master and Staff Chief Engineer shall include toilet, lavatory w/vanity & mirror, and shower. One (1) separate toilet space and one (1) separate shower space may be shared by adjacent Officer Staterooms for Items "C", "D", and "E" above.

1 Design and provide a Dayroom in the No. 1 End of the Crew Accommodation
2 Block.

3 Design and provide a Linen Locker and Cleaning Gear Locker in the No. 2 End of
4 the Crew Accommodation Block. The Linen Locker shall measure at least 6 feet
5 wide × 4 feet deep, at a minimum.

6 **1B.12.1.2 Non-licensed Crew**

7 Non-licensed Deck Crew shall be provided with double Staterooms with limited
8 sanitary facilities (lavatory). As a minimum, six (6) double staterooms shall be
9 provided in the No. 2 End of the Crew Accommodation Block.

10 All Crew Staterooms shall be outboard rooms with windows, and similar in layout
11 as to arrangement, and personnel assignment location as set forth in this Section
12 of the Technical Specification, and as noted elsewhere in other Sections of the
13 Technical Specification.

14 Each Crew Stateroom shall be designed to accommodate no more than two (2)
15 Crew members. Each stateroom shall be arranged with the double bunk located
16 against the outboard bulkhead and the desk, chair, lockers and lavatory arranged
17 so as to allow the most efficient use of the space. Final stateroom arrangement
18 shall be subject to approval from the WSF Representative. Toilet and shower
19 facilities shall be separate from Crew Staterooms but shall be in close proximity.

20 Consideration must be given in the design of Officer and Crew facilities to the
21 fact that there are Officers and Crew members of both genders.

22 **1B.12.2 Sanitary Facilities**

23 Design and provide an Engineer's Restroom on the EOS Flat level, adjacent to
24 the Engineer's Locker Room and Dayroom.

25 Design and provide an Engineer's Locker Room on the EOS Flat Level, adjacent
26 to the Engineer's Restroom and Dayroom.

27 Design and provide a Crew Restroom on the Lower Vehicle Deck, End No. 2,
28 Starboard.

1B.12.3 Dayrooms / Shelters

Design and provide an Engineer's Dayroom on the EOS Flat level, adjacent to the Engineer's Locker Room and Engineer's Restroom.

Design and provide a Crew Shelter on the Lower Vehicle Deck, End No. 2, Port.

Design and provide a Crew Dayroom on the Passenger Deck, adjacent to the Purser's Office. The Crew Dayroom and the Purser's Office shall be adjacent to each other with access by way of a 32 inch clear opening (minimum width) door.

Design and provide a Dayroom on the Sun Deck, in the Crew Accommodation Block.

1B.12.4 Unassigned Room

Design and provide an Unassigned Room to accommodate a minimum of two (2) Crew members on the Navigation Bridge Deck, End No. 2, Starboard.

1B.12.5 Offices

Design and provide a Chief Engineer's Office on the EOS Flat level, immediately adjacent to the Engineer's Operating Station (EOS).

Design and provide a Purser's Office near Midships on the Passenger Deck. The office shall have direct access to the public areas, and be large enough to accommodate a bed for use in medical emergencies.

Design and provide a Security Office on the Navigation Bridge Deck. The overall size and access configuration shall be adequate to house all security and monitoring equipment as set forth in Section 95 of the Technical Specification.

Design and provide a Ship's Office on the Navigation Bridge Deck, immediately towards Midship from the Pilothouse No. 2. The overall size and access configuration shall be similar to the Master's Stateroom. A separate restroom with toilet and lavatory w/vanity& mirror shall be provided.

Both Pilothouses shall be configured to serve as back-up Security Offices when a Security Level requires it.

1B.12.6 Crew Stairtower

As part of the WSF Homeland Security System for Vessels under this Contract, provide a Crew Stairtower, for the Crew's exclusive use, serving all decks from the EOS flat (14'-0" level) through the Navigation Bridge Deck. The dedicated stairtower shall be fabricated as set forth in Sections 4, 5, 6, 12 and 92 of the Technical Specification. Each level that the stairtower services shall be provided with an access door that is controlled and monitored by the security system.

1B.13 PUBLIC SPACES, EMBARKATION DECK AND MUSTER STATIONS

The Passenger Deck Cabin shall be divided at Midships by a Main Vertical Zone (MVZ) bulkhead that separates the public space into two (2) approximately equal size lounges. Each lounge shall be capable of accommodating the full Passenger capacity as a Qualified Refuge Area. All exit doors, passageways, stairtowers and other egress components shall be sized to meet this requirement. Additional guidance is contained in Reference (1BC).

For the purposes of evacuating the Vessel in the event of an emergency, the Passenger Deck shall be considered the Embarkation Deck. Access to the Marine Evacuation System slides shall be provided on this deck. See Section 16 of the Technical Specification.

Muster Stations shall be located within each Passenger Deck Lounge.

The Contractor is advised to pay special attention to the requirements of the USCG and AMERICANS WITH DISABILITIES ACT (ADA).

1B.14 CORRIDORS

Corridors shall be as straight and continuous as possible. The minimum width of the corridor on and serving the Passenger Deck shall be forty-eight (48) inches between handrails. The minimum width of the corridor in Crew areas shall be thirty-six (36) inches between handrails. *Dead-end corridors will not be allowed.*

The Contractor is advised to pay special attention to the requirements of the USCG and AMERICANS WITH DISABILITIES ACT (ADA).

1B.15 DOORS

Doors shall not in general open into passageways. Where it is unavoidable for a door to open towards a passageway, an alcove off the passageway shall be provided into which the door

shall open. Exceptions may be granted in the case of doors that do not have a lot of use and that may only be opened and closed from the passageway (e.g., Cleaning Gear Locker doors). This requirement need not be applied to normally-open fire doors. All requests for such exemptions shall be forwarded, in writing, to the WSF Representative for consideration and approval.

All doors opening to weather shall be protected from rain by deck overhangs or rain shields. Doors on the Passenger Decks shall be protected by alcoves formed by the Curtain Plating, deckhouse and Sun Deck overhangs.

Stairways and ladderways (including vertical ladders) shall be oriented fore and aft (i.e., a person using the stairway or ladderway will be facing either forward or aft) in all areas normally accessible to Passengers, and to the maximum extent possible elsewhere.

Where absolutely unavoidable, and only with WSF and Authoritative Agency prior approval; stairways or ladderways may be oriented athwartship, provided all reasonable alternative means of access have been explored for obtaining access to such spaces (e.g., vertical ladders, sliding watertight doors, etc.).

1B.16 PERSONNEL PROTECTION

The Contractor shall provide personnel protection in the form of padding in areas wherever structure and/or equipment presents an unavoidable personnel “head knocker” occurrence. These “head knockers” are defined as those areas where the required 7'-0" overhead headroom requirements in the *OTHER KEY DIMENSIONS* Subsection in this Section of the Technical Specification cannot be reasonably met, and in the determination of the WSF Representative will provide a personnel hazard. All such occurrences shall be provided with a minimum of one (1) inch thick high density foam padding and painted “SIGNAL YELLOW” as set forth in Section 14 of the Technical Specification to warn personnel of the low clearance. See Section 7 of the Technical Specification for additional installation requirements.

1B.17 VISIBILITY FROM PILOTHOUSES

The Contractor’s design must maximize the view from the Pilothouses. Visibility forward, aft and to the sides shall be provided from normal duty stations in the Pilothouses and the bridge wings. It should be possible to view all Passenger and Vehicle loading and line handling activities from the Pilothouses. In general, windows shall be provided on the house front, rear (partial), and sides with breaks only for mullions and structure supports.

Aft facing windows shall be provided such that the linear footage of windows is at least 25-percent (25%) of the length of the enclosed Pilothouses. It is preferred that if any aft

viewing sector must be occluded that it be the centerline sector leaving the aft sectors to each side available for aft viewing.

Provide a Graphic Study as set forth in the *PHASE II TECHNICAL PROPOSAL REQUIREMENTS* Subsection in this Section of the Technical Specification.

1B.18 TANKS AND VOIDS

All tankage shall be a minimum of thirty-six (36) inches from the shell plating. Primary tankage shall be as follows:

1B.18.1 Diesel Fuel Tanks

A minimum capacity in the fuel oil storage tanks, including day tanks, shall be sized as set forth in **TABLE 78-1** in Section 78 of the Technical Specification at 95-percent (95%) capacity. The fuel storage tanks, day tank and overflow tank shall be located beneath the EOS flat between the No. 1 and No. 2 Engine Rooms. The day tank shall be arranged so that it serves both Engine Rooms. The overflow tank shall have a minimum capacity sized as set forth in **TABLE 78-1** in Section 78 of the Technical Specification.

1B.18.2 Potable Water Tanks

Two (2) potable water tanks sized as set forth in **TABLE 78-1** in Section 78 of the Technical Specification shall be located in a tank room towards the No. 2 End of the Vessel.

1B.18.3 Sewage Holding Tanks

Two (2) sewage holding tanks sized as set forth in **TABLE 78-1** in Section 78 of the Technical Specification shall be located in tank rooms towards the No. 1 End of the Vessel.

Section 78 of the Technical Specification contains additional requirements for tankage.

1B.19 FOOD SERVICE AREAS

Food Vending/Service facilities for Passengers and Crew shall be in accordance with Section 17 of the Technical Specification.

1B.20 EXTERIOR APPEARANCE

The Contractor shall develop the design so that the exterior appearance of the Vessel is pleasing and with an overall style and appearance that matches the existing WSF mainline fleet as to visual, color, layout, and meets the requirements of Section 14 of the Technical Specification.

1B.21 STACK GAS FLOW

During Technical Proposal preparation the Contractor shall carefully consider the flow of stack gases during normal operations and at a reasonable range of speed, heading and wind direction to avoid **1).** Re-introduction of exhaust gases into any ventilation or combustion air intakes; and **2).** Exhaust gases sweeping down onto decks normally occupied by Passenger or Crew (e.g. Sun Deck, Passenger Deck).

The Contractor shall consider such design elements as stack location and height, stack shape, special features such as flow through design and/or deflecting foils, and the location of air intakes for ventilation and combustion air. As part of Phase II Technical Proposal the Contractor shall provide a written design report of findings describing the design measures intended to satisfy these exhaust gas and ventilation intake requirements.

11B.21.1 Stack Gas Flow Wind Tunnel Testing

As part of the Phase III Detailed Design portion of this Contract, the Contractor shall provide a true-to-design, 3D Sun Deck/Nav. Bridge Deck model, and provide wind tunnel testing to prove its design measures the actual flow of stack gasses, in fact, satisfy these exhaust gas and ventilation intake requirements.

The Contractor shall provide those adjustments to the final design to meet Stack Gas Flow requirements above, as defined by the wind tunnel test.

1B.22 MATRIX OF SPACES

The Matrix of Spaces (**TABLE 1B-1**) outlines the minimum functional requirements with regard to the type of space, relevant comments and areas required. Additional areas and spaces will be required. Areas designated as “minimum areas” are the minimum areas acceptable to WSF. Areas tabulated as “nominal areas” are considered to be representative of the area required to accomplish a satisfactory design solution, but are not absolute minimums. Spaces may have to be larger or smaller to suit the arrangement developed by

- 1 the Contractor and the equipment, fixtures and layout that is selected. See **TABLE 12-3** in
 2 Section 12 of the Technical Specification for standard WSF Vessel space layout, as to Vessel
 3 End location.

TABLE 1B-1, Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Below Lower Vehicle Deck (Main Deck)	Engine Room (No. 1 & No. 2 Ends)	2	2,500 ea.	Space as required to install & service machinery.
	Reduction Gear Room (No. 1 & No. 2 Ends)	2	1,100 ea.	Separate from Engine Room
	Tank Room (No. 1 & No. 2 Ends)	2	850 ea.	Contains FW and Sewage Tanks & Machinery
	Void (No. 1 & No. 2 Ends)	2	850 ea.	Contains stern tube, shafts, and seals
	Steering Gear Room (No. 1 & No. 2 Ends)	2	500 ea.	Contains all steering machinery
	Engineer Operating Space (EOS)	1	640	Contains Control Console and Main Switchboard (14'-0" level)
	Chief Engineer's Office	1	210	Adjacent to EOS (14'-0" level)
	Engineer's Dayroom	1	200	Adjacent to EOS (14'-0" level)
TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks

Below Lower Vehicle Deck (Main Deck), cont'd	Engineer's Locker Room/ Stores (Stbd)	1	675	Adjacent to EOS (14'-0" level)
	Engineer's Restroom	1	125	Locate adjacent to Engineer's Dayroom (includes washer, dryer, lav, WC, and shower) (14'-0" level)
	Engineer's Workshop	1	480	Locate adjacent to Engine Rooms & EOS (14'-0" level)
	Engineer's Storeroom (Port)	1	930	Locate adjacent to Workshop & Chief Engineer's Office (14'-0" level)
Lower Vehicle Deck	Vehicle & Motorcycle Parking	1	18,000	Excluding curbing and req'd ADA & escape pathways
	Electrical Dist. Room	1	130	
	Rescue Boat Stowage	2	250 ea.	One (1) at each End, one (1) port and starboard
	Fire Fighting Foam Storage Locker	2	190 ea.	One (1) at each End, located under vehicle ramps, just forward of Rescue Boat Stowage, with access to space from the Lower Vehicle Deck
	Line Stowage Locker	1	125	
	Engineer's Storeroom	1	125	
	Fueling Equipment Locker	1	75	

TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Lower Vehicle Deck, cont'd	Parts Removal	3	40 ea.	To/from Engine Rooms and Storeroom/ Workshop
	Tow Bridle Stowage	1	150	
	Anchor Stowage	1	--	As required to stow anchor
	Anchor Winch Area	1	150	
	Deck Crew Shelter	1	150	
	Crew Restroom	1	25	
	Emergency Squad Locker	1	140	Opposite End from Deck Crew Shelter
	Fueling Station	1	35	Adjacent to Stores Opening
Upper Vehicle Deck	Vehicle Parking	2	4,500 per side	Port & starboard of casings, including ramps, excluding curbing
	Bicycle Stowage Area	4	--	Near ends and along ramp sides, on curbing
	Electrical Distribution Room	2	130 ea.	Port and Starboard
	Reserved Room	1	150	
	Deck Locker	4	75 ea.	

TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Upper Vehicle Deck, cont'd	Paint Locker	1	50	
Vehicle Decks (General)	ADA Vehicle Parking Spaces	6	590 (UVD) 875 (LVD)	Locate near Elevators Part of Vehicle Decks
	Cleaning Gear Locker	2	50 ea.	Port and starboard
	Elevator	2	55 ea.	ADA – LULA, from LVD to uppermost Passenger accessible deck
	PFD Stowage	2	25 ea.	Near casing ends
Passenger Deck	Passenger Lounge	2	7,400 ea.	
	Passenger Seating	1,000		Seat width 24" minimum
	Cafeteria Area	1	1,300	Adjacent to Small Galley Area
	Small Galley Area	1	800	Can include Amenities
	Exterior Deck Area Pickleforks (two (2) each End))	2	1,650 ea.	Both ends of the Passenger Deck, arrangement to suit Overhead Loading

TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Passenger Deck, cont'd	Men's Restroom	1	490	Restroom shall and be adjacent to the Passenger Deck Women's Restroom (separated by a common pipe chase), the Unisex Restroom, Purser's Office, and Crew Dayroom. These spaces shall be provided on End No. 1, straddling the centerline with the layout providing the dayroom and Purser's Office closest to Vessel midpoint.
	Women's Restroom	1	620	See "Remarks" for Men's Restroom
	Unisex Restroom	1	85	One (1) near Men's Restroom. See "Remarks" for Men's Restroom
	Cleaning Gear Lockers	2	30 ea.	One each in Men's and Women's Restroom.
	Cleaning Gear Lockers	2	25 ea.	One at each end of passenger cabin
	Purser's Office	1	150	Adjacent to information center. See "Remarks" for Men's Restroom
	First Aid Area	1	--	Internal to Purser's Office.
	Crew's Dayroom	1	215	See "Remarks" for Men's Restroom

TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Passenger Deck, cont'd	Electrical Dist. Room	4	75 ea.	Port and Starboard, each End
	Emergency Squad Locker	1	50	
	PFD Stowage		--	Sufficient for 750 PFD's (May be stowed beneath bench seating)
Sun Deck	Passenger Lounge	2	2,200 ea.	Viewing windows on three (3) sides, open to atmosphere on the midship side
	Passenger Seating	325	--	Seat width 24" minimum
	Fan Room	2	850 ea.	One (1) each End, Crew Accommodation Block
	Electrical Dist. Room	1	175	In Crew Accommodation Block
	Emergency Generator Room	1	475	In Crew Accommodation Block
	Unisex Passenger Restroom	2	75 ea.	One (1) each End, near Lounge
	Fan Room	2	165 ea.	One (1) each End, serving Pilothouses
	Staff Chief Engineer's Stateroom	1	200	Stateroom (with lav, WC, and shower)
	Officer Stateroom	3	135 ea.	Staterooms (with lav only)

TABLE 1B-1, cont'd Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft²)	Remarks
Sun Deck, cont'd	Spare Stateroom	1	120	Stateroom (with lav only)
	Day Room	1	200	No. 1 End of accommodation block
	Officer Stateroom Shower	1	30	No. 1 End of Crew Accommodation Block
	Officer Stateroom Head	1	30	No. 1 End of Crew Accommodation Block
	Cleaning Gear Locker	3	25 ea.	One (1) each End near Lounge, one (1) in Crew Accommodation Block
	Deck Locker	2	45 ea.	Each end of Crew Accommodation Block
	Linen Locker	1	25	In Crew Accommodation Block
	Crew Staterooms	6	130 ea.	Staterooms (with lav only)
	Crew Stateroom Shower	2	30 ea.	No. 2 End of Crew Accommodation Block
	Crew Stateroom Head	2	30 ea.	No. 2 End of Crew Accommodation Block
Navigation Bridge Deck	Pilothouse	2	800 ea.	One (1) No. 1 & No. 2 End
	Bridge Wing	4	125 ea.	Two (2) No. 1 & No. 2 End
	Master's Stateroom	1	310	Behind No. 1 Pilothouse (with lav, WC, and shower)

TABLE 1B-1, cont'd				
Matrix of Spaces				
Space Category or Deck Level	Space Description	No. Req'd	Minimum Deck Area (ft ²)	Remarks
Navigation Bridge Deck, cont'd	Ship's Office	1	215	No. 2 End of Stbd Stack (with lav, and WC)
	Electrical Dist. Room	2	90	Behind each Pilothouse
	Battery Stowage	2	20	Behind each Pilothouse
	Unassigned Room	1	140	No. 2 End of Stbd Stack
	Security Office	1	315	No. 1 End of Port Stack
Stack Area (Port)	Emergency Diesel Generator Radiator Room	1	475	No. 1 End in Port Stack

NOTE: Table does not include passageways, stairways and stair towers, tanks, trunks and other such spaces.

1B.23 PHASE II TECHNICAL PROPOSAL REQUIREMENTS

The following deliverables, in addition to others required by Section 100 of the Technical Specification and the Authoritative Agencies, shall be submitted during the Phase II Technical Proposal stage of Work in accordance with the requirements of Section 100 of the Technical Specification:

A. Space Inventory

B. Dock Interfaces (Vehicle Loading and Passenger Embarkation) drawing

C. Narrative describing approach to satisfying the stack gas flow and ventilation intake requirements of the above *STACK GAS FLOW* Subsection in this Section of the Technical Specification.

1 D. ADA Plan described in the above *AMERICANS WITH DISABILITIES ACT* Subsection
2 of this Section of the Technical Specification.

3 The ***Space Inventory*** shall give the minimum, nominal and as-designed square footage of
4 each space on the Vessel. **TABLE 1B-1** in this Section of the Technical Specification
5 provides requirements regarding minimum and nominal areas for various types of spaces.

6 **1B.24 PHASE III DETAIL DESIGN AND CONSTRUCTION REQUIREMENTS**

7 The following deliverables, in addition to other deliverables required by Section 100 of the
8 Technical Specification and the Authoritative Agencies, shall be submitted for the
9 Construction stage of Work in accordance with the requirements of Section 100:

10 A. Space Inventory

11 B. Vehicle Deck Mock-up Demonstration

12 C. Artist's Rendering (including photographic copies, with electronic copies)

13 D. Graphic Studies

14 The ***Fire Control Plan*** shall be developed in accordance with Authoritative Agency
15 requirements using IMO standard colored symbols and colored fire zone boundaries. The
16 Plan shall be developed using WSF's standard format which will be provided upon request.
17 This format includes a first sheet having a key plan showing fire alarm zones and tables for
18 symbols, emergency pump information, ventilation control information, damage control
19 locker outfitting and fire fighting equipment. This drawing shall be separate from the Fire
20 Zone Plan.

21 The ***Vehicle Deck Mock-up Demonstration*** as set forth in the *Vehicle Deck Mock-up*
22 *Demonstration* Subsection of this Section of the Technical Specification shall be provided in
23 a timely fashion to allow for the Contractor to accomplish any design adjustments which may
24 be illuminated by the abovementioned demonstration.

25 The ***Artist's Rendering*** shall be a color rendering of the Vessel's outboard profile. The
26 rendering shall be approximately twenty (20) inches long (overall Vessel length) and
27 prepared by a professional artist using the WSF color scheme.

28 Twenty (20) 8 inch × 10 inch satin finish color photographs of the artist's rendering shall be
29 provided.

- 1 Plan view and profile drawings shall show all outboard fittings (i.e., deck machinery,
2 anchors, boats and davits, lifesaving gear, bitts, chocks, deck lines (profiles only), light
3 fixtures, port lights, windows, ladders, rails, stanchions, shore tie stations, antennas, rigging,
4 scuppers, ventilators, uptakes and stacks, rudders, shafting, propellers, etc.).
- 5 Profile drawings shall depict underwater body and fittings in hidden lines, and shall indicate
6 the heights of tank tops, decks, platforms, masts, antennas and waterlines.
- 7 Plan and elevation views of arrangement drawings shall depict the location and swing of
8 doors and hatches.
- 9 **Graphic Studies** drawing shall be provided showing the views ahead, to each side, and astern
10 from normal duty stations in the Pilothouses. The graphic study shall show the Vessel's
11 surroundings in both the horizontal and vertical planes from key Pilothouse watch and
12 control locations including, but not limited to, the Captain's chairs and the Pilothouse
13 Control Console operating stations.

(END OF SECTION)